Substance Use among Runaway and Homeless Youth in Three National Samples

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ABSTRACT

Objectives. Standardized estimates of the prevalence of substance use by runaway and homeless youth between the ages of 12 and 21 in various settings were compared with each other and with estimates for youth in the general population.

Methods. Four surveys were used: (1) a nationally representative survey of runaway and homeless youth residing in federally and nonfederally funded shelters; (2) a multicity survey of street youth; (3) a nationally representative household survey of youth with and without recent runaway and homeless experiences; and (4) a nationally representative household survey of youth whose previous runaway/homeless status was unknown.

Results. For almost every substance, substance use prevalence was highest among street youth. Shelter youth and household youth with recent runaway/homeless experiences reported similar rates. In the household surveys, substance use rates were lowest and were generally comparable.

Conclusions. Many homeless and runaway youth use tobacco, alcohol, and other drugs at rates substantially higher than nonrunaway and nonhomeless youth, indicating a need for comprehensive and intensive substance abuse prevention and treatment services for these youth. (*Am J Public Health.* 1997;87:229–235)

Introduction

Runaway and homeless youth are vulnerable to serious health and social consequences.[1–6] The vulnerability of this population is due to stresses associated with daily survival and to a lifestyle characterized by high-risk behavior. Tobacco, alcohol, and other drug use is recognized as one of the major problems affecting these youth.[1,2,7,8] According to recent studies, the prevalence of substance use is high among runaway and homeless youth[2,8–11] and is substantially higher than among nonhomeless youth.[6,12,13] Substance use has been implicated as contributing to running away or becoming homeless, as well as to exacerbating problems that youth experience as a result of leaving home.[1,4]

Prevalence estimates of substance use among runaway and homeless youth have varied substantially across studies. This variability is due to methodological factors, such as variation in (1) the settings in which the youth were identified (e.g., shelters, medical clinics, substance use treatment programs, and street locations); (2) the geographic locations where surveys were conducted; (3) the definitions used to identify runaway and homeless youth; and (4) the drug use measures employed. Comparison groups, when used, also have differed considerably (e.g., nonhomeless youth in service sites, in-school youth, delinquent youth), leading to differences in the relative magnitude of the substance use problem.[11–14] In addition, because of the logistical difficulties and expense of surveying runaway and homeless youth, many studies have been based on small samples or conducted in single locations (e.g., a single city or shelter).[3,5,14] Methodological differences, coupled with limited samples, have restricted both the representatives of substance use prevalence findings and their comparability.

The variability in findings also raises the possibility that runaway and homeless youth identified in various settings are at different risk for substance use. Specifically, runaway and homeless youth identified on the streets may be at greater risk of substance use than those in shelters, and shelter youth may be more at risk than youth with previous, but not current, runaway or homeless experiences. Some of the apparent differences in substance use across locations may be due to demographic differences (e.g., street youth generally are older than shelter youth).[1,3] Some differences, however, may reflect true variability in the populations, such that there may be a gradient of risk of substance use for runaway and homeless youth depending on their current living circumstances.

This paper reports the prevalence of tobacco, alcohol, and other drug use among runaway and homeless youth between the ages of 12 and 21 and compares substance use among youth with varying runaway and homeless experiences. Comparisons are also made with youth in the general population. Four surveys were used in this analysis: (1) the first nationally representative survey of runaway and homeless youth residing in both federally and nonfederally funded youth shelters; (2) the first multicity survey of street youth; (3) a nationally

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representative household survey of youth with and without recent runaway and homeless experiences; and (4) a nationally representative household survey of youth whose previous runaway/homeless experiences are unknown.

Methods

Definition of Runaway and Homeless Experiences

Definitions of runaway and homeless experiences used in this analysis are consistent with federal definitions. Runaway youth are defined as youth who have spent at least one night away from home without the permission of parents or legal guardians.[15] Homeless youth are defined as youth who have spent at least one night in a youth or adult shelter, an improvised shelter (e.g., an abandoned building, a public place, or a subway or other underground location), on the streets, or in the home of a stranger. This definition is consistent with the 1987 Stewart B. McKinney Homeless Assistance Act (Public Law 100-77, July 22, 1987) that defines homeless adults as individuals residing in shelters or places not designed for human habitation. As in other studies,[8,11,16] homeless youth are conceptualized as a subgroup of homeless persons.

The definitions of runaway and homeless experiences overlap because the dimensions used to operationalize them vary. The first describes the conditions under which youth leave home, while the second concerns the physical circumstances under which youth spend the night. Recent research has shown that among shelter and street samples, many runaway youth have been homeless and vice versa.[1] Because of the overlap, youth identified as runaway or homeless are examined in this study in the aggregate. These definitions were used as survey eligibility criteria for youth in the street and shelter surveys; they were also used to identify household youth with recent runaway or homeless experiences.

Surveys and Data Collection

Primary data were collected for the first two surveys: surveys of youth who were currently (at the time of the survey) runaway or homeless in (1) shelters and (2) street locations. The remaining two surveys are secondary sources comprising nationally representative household surveys. The first of these, the 1992 household-based Youth Risk Behavior Supplement (YRBS), yields data on two groups of youth: (1) those with recent self-reported runaway and homeless experiences and (2) those without such experiences. The second household survey, the 1992 National Household Survey on Drug Abuse (NHSDA), includes youth from the general population whose previous runaway/homeless experiences were unknown. Hence, prevalence data are presented for the following: (1) street youth with current runaway or homeless experiences, (2) shelter youth with current runaway or homeless experiences, (3) household youth with recent runaway or homeless experiences, (4) household youth with no recent runaway or homeless experiences, and (5) household youth with unknown runaway or homeless experiences. It is likely that the NHSDA includes some youth with previous runaway or homeless experiences. (Two household surveys are used because each offers a unique contribution. The YRBS allows comparisons with youth in households with and without recent runaway/homeless experiences. The YRBS, however, includes questions on a limited number of illicit drugs, whereas the NHSDA provides data on use of a comprehensive set of illicit drugs.)

Data for all four surveys were collected in 1992 and include youth aged 12 to 21. The age range was selected to provide comparability across surveys. In addition, the lower bound was selected because of the low prevalence of runaway and homeless youth (except in the context of homeless families) under age 12.

Multistage sampling techniques were used in the shelter survey to ensure that a nationally representative sample of youth residing in both federally and nonfederally funded youth shelters was selected. The first-stage sample comprised 25 primary sampling units from the 125 units selected for the 1991 NHSDA. (In the NHSDA, primary sampling units were constructed by partitioning the entire land area of the United States into nonoverlapping areas.) Primary sampling units were selected with probabilities proportional to size; that is, the likelihood that a unit was chosen was proportional to the estimated number of youth in that unit. Five primary sampling units, each located within a metropolitan area, were included with certainty because of their size. Of the remaining 20 units, 18 were in metropolitan areas. In the second-stage sample, 30 shelters were selected from a frame of all youth shelters (n = 82) located within the 25 primary sampling units. After accounting for ineligibles and refusals, the final second-stage sample included 23 shelters in 17 primary sampling units (all of which were located within metropolitan areas). The third stage involved the selection of youth within shelters and was designed to ensure that an equal number of interviews would be completed in large and small shelters. Therefore, different sampling rates, which were dependent on the number of youth housed, were used. Specifically, in shelters with 50 or fewer youth, all youth were sampled; in shelters with 51 to 75 youth, the sampling rate was 2 of 3; in shelters with more than 75 youth, the sampling rate was 1 of 2. A total of 840 shelter youth was sampled, of whom 660 met survey eligibility criteria. Approximately 97% of eligible youth completed the survey. Analysis is limited to the 631 shelter youth who were currently away from home for at least one night.

Because of the prohibitive costs and logistical difficulties of conducting a representative survey of street youth, a purposive sampling strategy was used. Ten cities across the United States, each of which was located within 1 of the 25 primary sampling units selected for the shelter survey, were chosen as data collection sites because of expected high concentrations of street youth. The selection of sites within each city was guided by the staff of local street outreach programs and/or police departments, who identified locations where street youth were likely to congregate and times when they were likely to be there. Interviewing shifts were scheduled accordingly. Most street youth were interviewed between 3 PM and 1 AM; interviews were equally distributed across days of the week. Field staff approached youth in the selected street sites and screened for eligibility. Although no screening information was recorded, interviewers reported that few eligible youth refused to participate. A total of 600 street youth completed the questionnaire. Analysis is limited to the 528 street youth who were currently away from home for at least one night.

The questionnaires used in the shelter and street surveys were identical except that a reduced number of questions was asked on the street instrument. Before conducting personal interviews, field staff obtained informed consent and assured the youth of the confidentiality of their responses. Shelter respondents were provided with an incentive of soft drinks and snacks; street respondents were given $10

in food coupons from a fast food restaurant.

The household-based YRBS, a follow-back to the 1992 National Health Interview Survey (NHIS), is a nationally representative survey of youth aged 12 to 21 that monitors health risk behaviors among youth.[17] The sampling frame for the NHIS comprised the civilian noninstitutionalized US population and used a multistage cluster-area probability design of approximately 120 000 persons representing 49 000 households. For the YRBS, a sample of youth was drawn from the families who were interviewed for the NHIS. Within each family, one youth attending school and up to two youth not in school, or whose school status was unknown, were selected. Of the 13 789 youth sampled, interviews were completed with a total of 10 645, yielding a response rate of 77.2%. Analysis is limited to the 10 593 youth for whom data on runaway and homeless experiences were available. Approximately 1178 (11%) of the youth reported having a runaway or homeless experience in the past year.

The NHSDA is a nationally representative household survey designed to measure the prevalence and correlates of substance use in the United States.[18] The 1992 NHSDA included a multistage area probability sample of over 30 000 individuals from the US civilian noninstitutionalized population aged 12 or older. The response rate for adolescents and young adults (i.e., those aged 12 through 25 years) was approximately 85%. Analysis is limited to the 11 071 interviews completed by youth aged 12 to 21.

TABLE 1—Demographic Characteristics (%) of Youth in Four Surveys: Street, Shelter, Youth Risk Behavior Supplement (YRBS), and National Household Survey on Drug Abuse (NHSDA)

	Runaway/Homeless			Nonrunaway/Nonhomeless	
	Current		Recent		
	Street (n = 528)	Shelter (n = 631)	YRBS (n = 1778)	YRBS (n = 8815)	NHSDA (n = 11 071)
Age, y					
12–17	34.0	65.3	66.5	59.2	59.6
18–21	66.0	34.7	33.5	40.8	40.4
Mean	17.9	16.1	16.3	16.5	16.5
Gender					
Male	61.2	39.2	58.3	48.8	50.0
Female	38.8	60.8	41.7	51.2	50.0
Race/ethnicity					
White	48.8	31.5	64.2	67.4	69.8
Black	25.3	40.7	15.8	15.0	15.2
Other	25.9	27.8	20.0	17.6	15.0
Current no. days away from home					
1–30	22.5	54.0	...	...	...
31–365	29.3	27.3	...	...	...
366+	48.2	18.7	...	...	...

Measures

In general, comparable measures of tobacco, alcohol, and drug use were included in all four surveys, although not all measures were available from each. The street, shelter, and NHSDA surveys collected information on the use of tobacco (cigarettes and smokeless tobacco), alcohol, marijuana, crack cocaine, cocaine other than crack, inhalants, hallucinogens, heroin, methamphetamines (ice), stimulants, sedatives, tranquilizers, and analgesics, as well as intravenous drugs. The NHSDA also collected data on the use of steroids. The YRBS survey collected information on cigarettes, alcohol, marijuana, crack cocaine, other cocaine, steroids, IV drugs, and "other drugs" (as a single variable). We created a measure comparable to "other drugs" for the street, shelter, and NHSDA surveys by collapsing responses to the set of drugs included in those surveys but not asked about on the YRBS. Hence, respondents in these surveys who reported use of inhalants, hallucinogens, heroin, methamphetamines, stimulants, sedatives, tranquilizers, or analgesics were coded as having used "other drugs."

Reference periods for substance use varied between the shelter and street surveys and the two household surveys. In the street and shelter surveys, measures of substance use covered a period from 30 days before the youth left home until the day of the interview, while the reference period in the household surveys was lifetime use. We chose to use lifetime measures for comparison in the household surveys, rather than past 30 days or past 12 months, because prevalence rates in the street and shelter surveys might have reflected time periods longer than 30 days or 12 months, depending on how long the youth had been away from home. The net effect of comparisons based on these different reference periods is that the probability of use for the street and shelter surveys may be underestimated compared with the household surveys.

Indicators of substance use in each of the four surveys were used to derive a hierarchical measure of stage of drug involvement, including no use followed by use of tobacco, alcohol, marijuana, and/or other illicit drugs. The stages are based on those typically identified in the sequencing of drug use, where the general ordering (without consideration of heavy use) is tobacco or alcohol followed by marijuana, followed by other illicit drugs.[19–21] Each respondent was coded according to the highest stage of involvement in the hierarchy. Note that identification with one stage neither implies nor denies use of substances in the preceding stages. For example, adolescents whose highest stage of drug involvement was use of marijuana may or may not have used tobacco and/or alcohol.

Age, gender, and race/ethnicity (categorized as White, Black, or other) were measured in each survey. In addition, current length of time away from home (in days) was measured in the shelter and street surveys.

Data Analysis

Prevalence estimates of substance use and stage of drug involvement are presented for youth from each survey; data from the YRBS are presented separately for youth with and without recent runaway or homeless experiences. Data from the street and shelter surveys are also presented by selected demographic characteristics. Because the shelter, YRBS, and NHSDA samples were selected to be nationally representative, data from these youth were weighted to reflect the complex sampling designs of the studies and therefore are unbiased national estimates.

TABLE 2—Unstandardized Prevalence Estimates (%) of Substance Use in Two Surveys of Currently Runaway and Homeless Youth, by Selected Demographic Characteristics

	Street							Shelter						
	Age Group		Gender		Race/Ethnicity			Age Group		Gender		Race/Ethnicity		
	12–17 y	18–21 y	Male	Female	White	Black	Other	12–17 y	18–21 y	Male	Female	White	Black	Other
Tobacco	77.7	80.2	81.2	75.5	86.1	64.7	81.0	49.8	64.8	66.2	47.9	80.5	38.4	50.5
Alcohol	77.7	83.4	83.0	78.9	86.1	72.9	81.0	53.4	65.2	63.5	53.7	76.3	43.5	56.7
Marijuana	72.1	77.9	78.1	72.6	81.4	64.7	76.6	37.3	49.6	51.5	35.3	56.9	28.5	43.6
Crack cocaine	18.4	33.5	29.9	26.0	31.8	21.1	29.2	2.0	12.5	9.6	3.2	9.2	3.3	5.2
Other cocaine	14.0	33.5	29.0	23.5	34.1	14.3	25.6	5.4	14.0	10.7	6.9	15.5	2.6	8.8
Other drugs	42.5	59.0	56.5	48.5	69.0	26.3	50.4	19.7	26.9	27.2	19.0	45.1	5.9	20.0
Inhalants	19.6	26.4	27.8	18.1	34.1	5.3	23.4	7.9	12.1	10.5	8.7	20.1	1.1	9.4
Hallucinogens	25.1	45.9	43.8	30.9	54.3	13.5	34.3	9.1	17.6	16.6	9.1	27.3	1.3	10.5
Heroin	7.3	19.2	15.7	14.2	21.7	3.8	13.9	0.6	3.8	3.5	0.6	4.7	0.0	0.9
Methamphetamines	4.5	9.7	10.2	4.4	11.2	3.0	6.6	0.7	1.7	0.9	1.1	1.8	0.0	1.7
Stimulants	24.0	33.8	31.5	28.9	42.3	8.3	29.9	6.6	12.9	10.2	7.9	21.1	1.2	5.9
Sedatives	18.4	29.2	25.9	25.0	34.9	6.0	27.0	7.5	10.8	8.4	8.8	17.9	1.9	8.1
Tranquilizers	14.0	22.1	21.9	15.2	27.5	5.3	17.5	2.4	8.8	7.5	2.8	12.6	0.6	1.5
Analgesics	20.1	35.8	31.5	28.9	42.6	12.8	24.8	8.1	12.6	11.8	8.3	20.3	4.4	5.2
Intravenous drugs	11.8	19.6	19.1	13.7	25.5	3.0	14.7	1.2	2.1	1.9	1.2	3.4	0.2	1.3

Note. The reference period for substance use in the street and shelter surveys covered the period from 30 days before the youth left home until the day of the interview.

TABLE 3—Standardized Prevalence Estimates (%) of Substance Use among Youth Aged 12 to 21 in Four Surveys: Street, Shelter, Youth Risk Behavior Supplement (YRBS), and National Household Survey on Drug Abuse (NHSDA)

	Runaway/Homeless				
	Current		Recent	Nonrunaway/ Nonhomeless	
	Street (n = 528)	Shelter (n = 631)	YRBS (n = 1778)	YRBS (n = 8815)	NHSDA (n = 11 071)
Tobacco[a]	81.4	71.2	65.4[a]	47.1[a]	48.9
Alcohol	80.9	67.0	82.4	64.3	56.7
Marijuana	75.3	52.0	42.5	25.0	23.4
Crack cocaine	25.8	8.0	5.9	2.3	1.4
Other cocaine	23.5	12.3	10.6	5.0	5.8
Steroids	. . .	. . .	2.5	1.1	0.6
Other drugs[b]	54.7	33.7	24.1	10.6	15.7
Inhalants	25.7	14.5	. . .	. . .	7.6
Hallucinogens	38.2	19.2	. . .	. . .	6.9
Heroin	13.6	4.4	. . .	. . .	0.5
Methamphetamines	7.5	2.1	. . .	. . .	0.5
Stimulants	32.1	16.0	. . .	. . .	3.4
Sedatives	25.7	13.4	. . .	. . .	2.0
Tranquilizers	19.7	9.7	. . .	. . .	3.4
Analgesics	31.5	14.9	. . .	. . .	5.9
Intravenous drugs	17.1	3.6	2.4	0.6	0.9

Note. Estimates for shelter, YRBS, and NHSDA samples are weighted. Additionally, estimates from the street, shelter, and YRBS surveys are standardized to the NHSDA survey on the following variables: age group (i.e., 12–17 and 18–21), gender, and race/ethnicity (i.e., White, Black, and other). The reference periods for substance use in the street and shelter surveys covered the period from 30 days before the youth left home until the day of the interview; the reference period for the YRBS and NHSDA surveys was lifetime.

[a]Cigarette use only.

[b]In the YRBS, "other drug" use was asked in a single question; in the other surveys, a comparable measure was created by collapsing responses to the set of drugs included in those surveys but not asked about on the YRBS.

Data from the street survey were not weighted, however, because of the purposive sampling design.

Because of the variation in the demographic composition of the surveys and the expected variation in substance use by demographic characteristics, standardized estimates are also provided to allow comparisons across surveys. Estimates from the street, shelter, and YRBS surveys were each standardized to the demographic characteristics (i.e., age group, gender, race/ethnicity) of the NHSDA survey. This was accomplished by first calculating estimates for each of the standardizing cells formed by the cross-tabulation of age, gender, and race/ethnicity for the NHSDA survey. These were then used to weight estimates derived from the other surveys. The result of this analysis is that demographic variation across surveys is controlled, yielding directly comparable estimates across surveys. We used SUDAAN (SUrvey DAta ANalysis) software to conduct all analyses.[22] We calculated chi-square tests to assess the statistical significance of the differences between standardized estimates for comparison groups (alpha = .05).

Sample Characteristics

Demographic characteristics varied considerably across surveys (Table 1). Shelter youth generally were younger than street youth, but were close in

average age to youth in the two household surveys. More males than females were in the street survey, while the reverse was true in the shelter survey. Somewhat more males than females reported recent runaway or homeless experiences. Blacks were overrepresented in both the street and shelter surveys compared with the household surveys. In fact, Blacks constituted the largest percentage of shelter youth.

Street youth had spent substantially more time away from home than shelter youth. Almost half the street youth had currently been away from home for more than a year, whereas the majority of the shelter youth had been away less than 1 month.

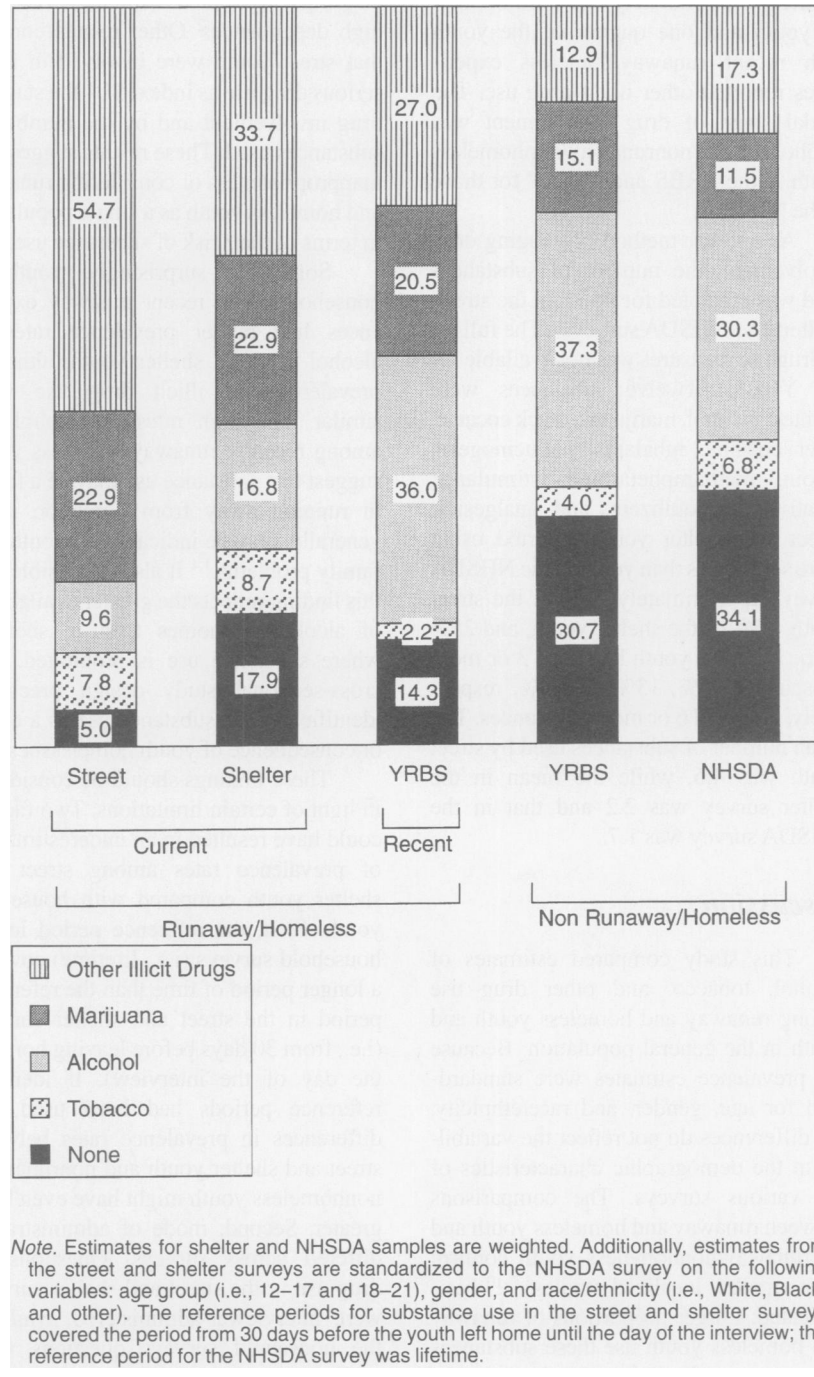
Results

Unstandardized estimates of substance use prevalence in the street and shelter surveys varied considerably within demographic subgroups. Within samples, most prevalence rates were higher among older (i.e., those aged 18 to 21) than younger (i.e., those aged 12 to 17) youth, among males than females, and among Whites than Blacks (Table 2). Comparisons of prevalences within demographic subgroups suggest that use of most substances was higher among the street youth than the shelter youth.

Standardized estimates confirm that, for almost every substance, prevalence was substantially higher among street youth than shelter youth; in fact, use was higher among street youth than among all others (Table 3). Of particular note, approximately three quarters of the street youth reported marijuana use; around one third reported use of hallucinogens, stimulants, and analgesics, and one quarter reported use of crack cocaine, other cocaine, inhalants, and sedatives. A significant minority (17.1%) reported IV drug use. Chi-square tests comparing the street and shelter youth were statistically significant for all substances except inhalants, sedatives, and tranquilizers.

Shelter youth and youth in households with recent runaway/homeless experiences generally reported similar rates of substance use. The exceptions were alcohol use, which was significantly higher among household youth, and marijuana and other drug use, which was significantly higher among the shelter youth. All comparisons of substance use between street youth and youth in the NHSDA and between youth with recent runaway/homeless experiences and youth without such experiences in the YRBS were statistically significant. Chi-square tests comparing the shelter youth and youth in the NHSDA were statistically significant for all substances except methamphetamines and IV drugs. Rates of substance use were lowest and generally comparable among nonrunaway/nonhomeless youth in the YRBS and NHSDA.

As shown in Figure 1, the severity of substance use among street youth was reflected in the hierarchy of drug involvement. Over half the street youth reported use of illicit drugs other than marijuana as



Note. Estimates for shelter and NHSDA samples are weighted. Additionally, estimates from the street and shelter surveys are standardized to the NHSDA survey on the following variables: age group (i.e., 12–17 and 18–21), gender, and race/ethnicity (i.e., White, Black, and other). The reference periods for substance use in the street and shelter surveys covered the period from 30 days before the youth left home until the day of the interview; the reference period for the NHSDA survey was lifetime.

FIGURE 1—Standardized estimates (%) of the hierarchy of drug involvement among youth aged 12 to 21 in four surveys: street, shelter, Youth Risk Behavior Supplement (YRBS), and National Household Survey on Drug Abuse (NHSDA).

the highest stage of involvement. In contrast, approximately one third of shelter youth and one quarter of the youth with recent runaway/homeless experiences reported other illicit drug use. The modal stage of drug involvement was alcohol for the nonrunaway/nonhomeless youth in the YRBS and "none" for those in the NHSDA.

As another method of gauging drug involvement, the number of substances used was tabulated for youth in the street, shelter, and NHSDA surveys. (The full set of drug use measures was not available for the YRBS.) Twelve substances were counted: alcohol, marijuana, crack cocaine, other cocaine, inhalants, hallucinogens, heroin, methamphetamine, stimulants, sedatives, tranquilizers, and analgesics. Street and shelter youth reported using more substances than youth in the NHSDA survey. Approximately 71% of the street youth, 46% of the shelter youth, and 25% of the NHSDA youth had used 3 or more substances; 35%, 13%, and 4%, respectively, had used 6 or more substances. The mean number of substances used by street youth was 4.6, while the mean in the shelter survey was 2.2 and that in the NHSDA survey was 1.7.

Discussion

This study compared estimates of alcohol, tobacco, and other drug use among runaway and homeless youth and youth in the general population. Because the prevalence estimates were standardized for age, gender, and race/ethnicity, the differences do not reflect the variability in the demographic characteristics of the various surveys. The comparisons between runaway and homeless youth and nonrunaway/nonhomeless youth confirm what smaller, localized studies[5,7–10] have indicated: Larger proportions of runaway and homeless youth use these substances than do youth living in households. Differences in prevalence rates are particularly pronounced for illicit drug use.

The findings also demonstrate that the risk of substance use for runaway and homeless youth varies depending on their current living circumstances. Street youth had markedly higher rates of substance use than either shelter youth or those currently living at home who had run away or been homeless in the previous year. The differences in rates of most substance use between street and shelter youth were statistically significant. Most notable, substantially more street than shelter youth used IV drugs, heroin, methamphetamines, and crack cocaine—all drugs associated with high risk and high dependence.[2] Other results confirm that street youth were involved in more serious drug use as indexed by the stage of drug involvement and by the number of substances used. These results suggest the inappropriateness of considering runaway and homeless youth as a single population in terms of their risk of substance use.

Somewhat surprisingly, youth in households with recent runaway experiences had higher prevalence rates of alcohol use than shelter youth, although prevalences of illicit drug use were similar. The high rates of alcohol use among recently runaway/homeless youth suggest that substance use may be a factor in running away from home or, more generally, may be indicative of youth and family problems.[1,4] It also is possible that this finding reflects the greater availability of alcohol in homes than in shelters, where substance use is prohibited. The cross-sectional study design precludes identification of substance use as a cause or consequence of youth homelessness.

These findings should be considered in light of certain limitations. Two factors could have resulted in an underestimation of prevalence rates among street and shelter youth compared with household youth. First, the reference period in the household surveys (i.e., lifetime) covered a longer period of time than the reference period in the street and shelter surveys (i.e., from 30 days before leaving home to the day of the interview). If identical reference periods had been used, the differences in prevalence rates between street and shelter youth and nonrunaway/nonhomeless youth might have even been greater. Second, mode of administration differed across surveys. Questions on drug use in the street and shelter surveys were interviewer-administered, while in the household surveys questions were self-administered. Previous research has shown that interviewer administration may lead to the underreporting of drug use.[23] Regardless, for all four surveys, the substance use measures were based on self-reports and may be subject to under- or overreporting. Another limitation is that the street survey used a purposive rather than representative survey design. Other research has demonstrated the difficulties in obtaining representative surveys of street populations.[2,24] Street youth were, however, interviewed in 10 cities across the United States in order to provide a large, geographically diverse sample. In other respects, the methodologies used in this study address many of the limitations of previous research: (1) selection of runaway and homeless youth from a variety of settings and geographic locations; (2) use of nationally representative surveys; (3) use of consistent definitions to identify runaway and homeless youth; and (4) comparison with surveys of youth from the general population.

The high rates of substance use documented by this study raise a number of questions and concerns. A basic question is why runaway and homeless youth are at increased risk for substance use. Although we did not investigate correlates of substance use, many of the same factors that cause youth to run away from home or become homeless may play a role in their substance use. For example, family discord, physical and emotional abuse, and rebellion may be linked to both behaviors. Once away from home, survival demands, a readily available drug supply, street subcultures, and lack of access to health care and drug treatment services may place these youth at greater risk.[4]

Other concerns revolve around the consequences of high rates of substance use among runaway and homeless youth, such as physical and mental health problems. Of greatest concern is that runaway and homeless youth, particularly street youth, are at increased risk of human immunodeficiency virus (HIV) infection because of the prevalence of IV drug use (17% among street youth) and risky sexual behaviors (e.g., survival sex) that often co-occur with alcohol and drug use.[2,3,11,25,26] Substance use also may be related to other risky behaviors and problematic outcomes, such as depression, suicide, physical victimization, and illegal activities.[3,16] Additionally, drug involvement may make it difficult for youth to regain stable living situations with their families or to establish alternative placements.[11]

The high rates of substance use indicate the need for drug intervention and treatment services for runaway and homeless youth, a need that is currently not being adequately met.[27] Shelters provide these services in-house, through referrals to other agencies, and through outreach efforts. Since many runaway and homeless youth never seek the services of shelters,[1] outreach efforts may be the only method for reaching these youth. In addition, methods of making comprehensive substance abuse treatment services more accessible to runaway and homeless youth are needed. These may include, for

example, increasing the number and visibility of mobile vans and outreach staff, locating storefronts with "street-wise" staff in areas where youth congregate, and strengthening links among existing service systems. Without substantial intervention, both with youth and with their families, runaway and homeless youth will remain a subgroup of adolescents at extreme risk of substance abuse and its adverse consequences. □

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References

1. Greene J, Ringwalt C, Kelly J, Iachan R, Cohen Z. *Youth with Runaway, Throwaway, and Homeless Experiences: Prevalence, Drug Use, and Other At-Risk Behaviors.* Washington, DC: US Dept of Health and Human Services, Administration on Children, Youth and Families; 1995.
2. Kipke M, O'Connor S, Palmer R, MacKenzie R. Street youth in Los Angeles: profile of a group at high risk for human immunodeficiency virus infection. *Arch Pediatr Adolesc Med.* 1995;149:513–519.
3. Greenblatt M, Robertson M. Lifestyles, adaptive strategies, and sexual behaviors of homeless adolescents. *Hosp Community Psychiatry.* 1993;44:1177–1780.
4. Robertson MJ. Homeless youth: an overview of recent literature. In: Kryder-Coe JH, Salamon LM, Molnar JM, eds. *Homeless Children and Youth: A New American Dilemma.* New Brunswick, NJ: Transaction Publishers; 1991:33–68.
5. Sherman DJ. The neglected health care needs of street youth. *Public Health Rep.* 1992;107:433–440.
6. Yates GL, MacKenzie R, Pennbridge J, Cohen E. A risk profile comparison of runaway and non-runaway youth. *Am J Public Health.* 1988;78:820–821.
7. National Network of Runaway and Youth Services. Preliminary findings from the National Network's survey of runaway and homeless youth. Testimony before the House Subcommittee on Human Resources; January 1988.
8. Robertson M, Koegel P, Ferguson L. Alcohol use and abuse among homeless adolescents in Hollywood. *Contemp Drug Probl.* 1989;16:415–452.
9. Shaffer D, Caton C. *Runaway and Homeless Youth in New York City: A Report to the Ittleson Foundation.* New York, NY: New York State Psychiatric Institute and Columbia University College of Physicians and Surgeons, Division of Child Psychiatry; 1984.
10. Van Houten T, Golembiewski G. *Adolescent Life Stress as a Predictor of Alcohol Abuse and/or Runaway Behavior.* Washington, DC: American Youth Work Center; 1978.
11. Kipke M, Montgomery S, MacKenzie R. Substance use among youth seen at a community-based health clinic. *J Adolesc Health.* 1993;14:289–294.
12. Fors S, Rojek D. A comparison of drug involvement between runaways and school youths. *J Drug Educ.* 1991;21:13–25.
13. Smart R, Ogborne A. Street youth in substance use treatment: characteristics and treatment compliance. *Adolescence.* 1994;155:733–745.
14. Forst M. A substance use profile of delinquent and homeless youths. *J Drug Educ.* 1994;24:219–231.
15. Final rule on Runaway Youth Program: administration requirements. *Federal Register.* November 28, 1978;43:55634–55638.
16. McCarthy B, Hagan J. Surviving on the street: the experiences of homeless youth. *J Adolesc Res.* 1992;7:412–430.
17. Adams PF, Schoenborn CA, Moss AJ, Warren W, Kann L. *Health Risk Behaviors among Our Nation's Youth: United States, 1992.* Washington, DC: National Center for Health Statistics. In press.
18. Substance Abuse and Mental Health Services Administration, Office of Applied Studies. *National Household Survey on Drug Abuse: Main Findings 1992.* Rockville, Md: US Public Health Service; 1995. DHHS publication SMA-94-3012.
19. Elickson PL, Hays RD, Bell RM. Stepping through the drug use sequence: longitudinal scalogram analysis of initiation and regular use. *J Abnorm Psychol.* 1992;101:441–451.
20. Kandel D. Stages in adolescent involvement in drug use. *Science.* 1975;190:912–914.
21. Yamaguchi K, Kandel DB. Patterns of drug use from adolescence to young adulthood, II: sequences of progression. *Am J Public Health.* 1984;74:668–672.
22. Shah B, Barnwell B, Bieler G. *SUDAAN User's Manual, Release 7.0.* Research Triangle Park, NC: Research Triangle Institute; 1996.
23. Turner C, Lessler J, Devore J. Effects of mode of administration and wording on reporting of drug use. In: Turner C, Lessler J, Gfroerer J, eds. *Survey Measurement of Drug Use: Methodological Studies.* Washington, DC: National Institute on Drug Abuse; 1992:221–244.
24. *The Washington, DC, Metropolitan Area Drug Study: Prevalence of Drug Use in the Washington, DC, Metropolitan Area Homeless and Transient Population: 1991.* Washington, DC: National Institute on Drug Abuse: 1993.
25. Pennbridge J, Freese T, MacKenzie R. High-risk behaviors among male street youth in Hollywood, California. *AIDS Educ Prev.* 1992;fall (suppl):24–33.
26. Rotheram-Borus M, Meyer-Bahlburg H, Koopman C, et al. Lifetime sexual behavior among runaway males and females. *J Sex Res.* 1992;29:15–29.
27. Dietz P. *Access to Health Care for Runaway and Homeless Youth: Summary Report.* Washington, DC: National Association of Community Health Centers and National Network of Runaway and Youth Services; 1991.